TMDLs for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed

State Water Board Hearing
Agenda Item 5
March 6, 2018

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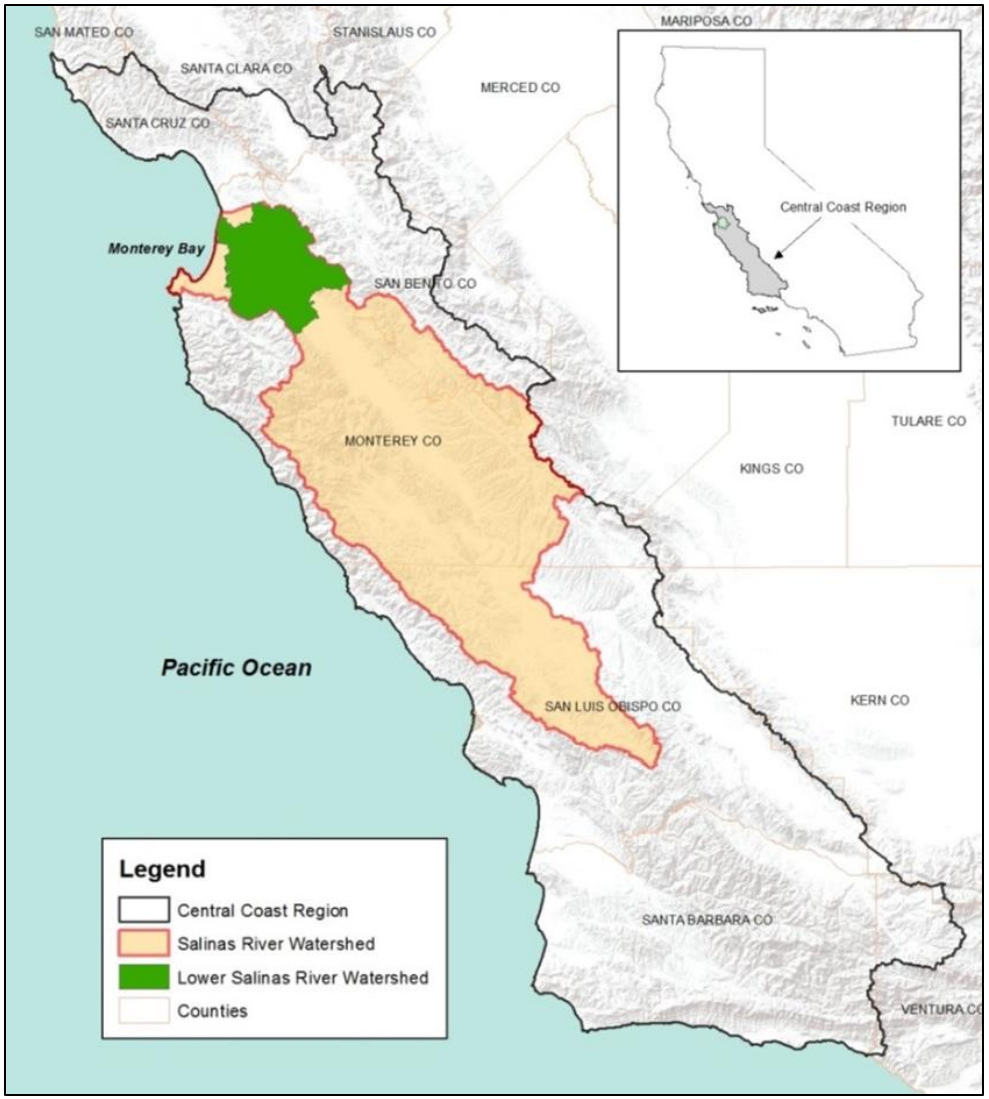
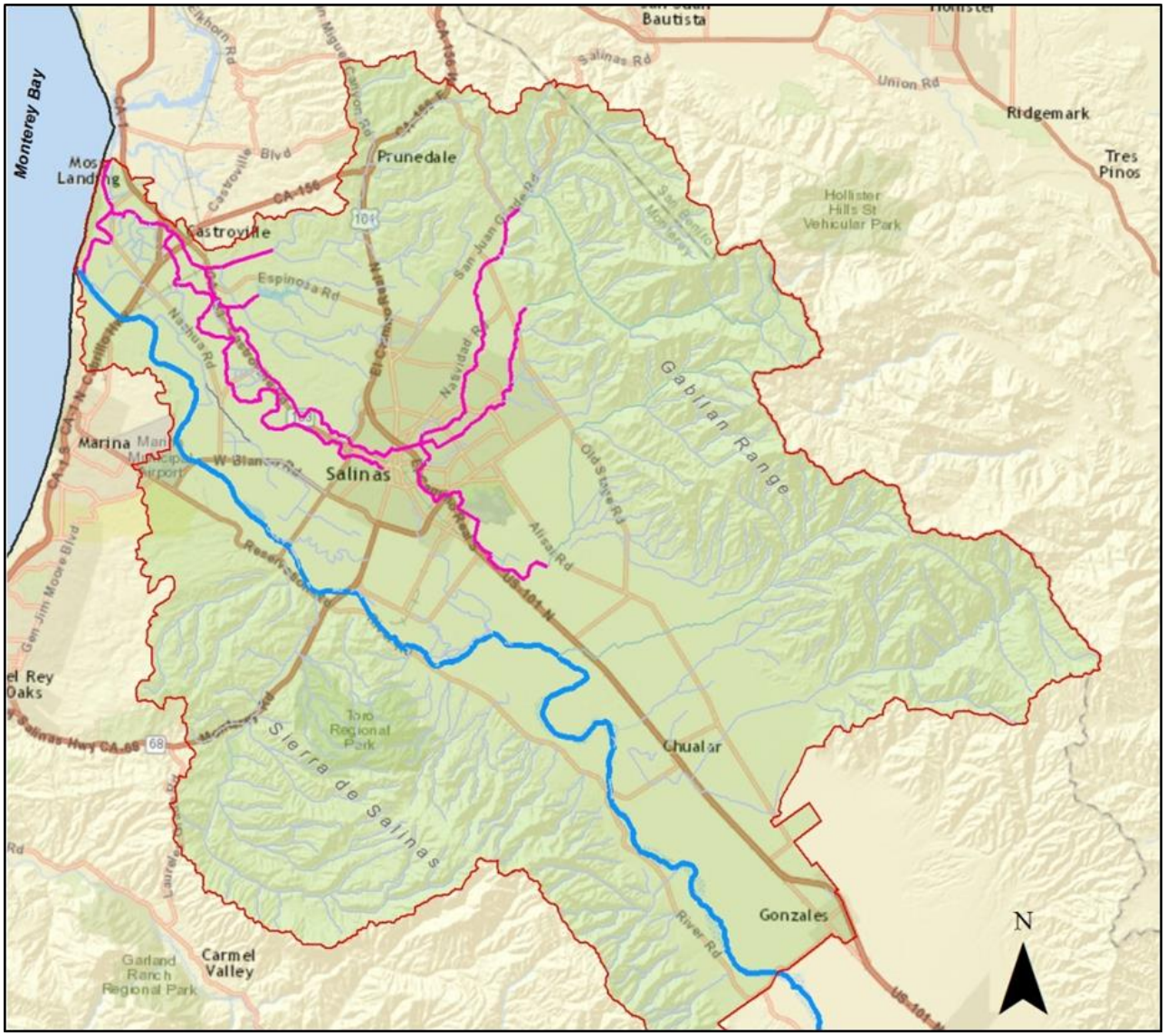
Central Coast Water Board TMDL Program

Presentation Outline

- Background
- TMDL Analysis
- TMDL Components
- Public Comments
- Conclusions
- Staff recommendation



Lower Salinas River Watershed



Lower Salinas River Watershed

TMDL Analysis

- Impairment assessment
  - Extensive sediment toxicity (159 sediment toxicity samples and 70% were toxic)
  - Pyrethroids in sediment
- Source analysis
  - Urban stormwater
  - Irrigated agriculture

TMDL Components

- Numeric Targets
  - Sediment toxicity
  - Pyrethroid sediment concentration toxicity unit
  - Pyrethroid concentration in water column (UC Davis Criteria)
- TMDLs
  - Sediment toxicity
  - Pyrethroids in sediment
- Allocations
  - Municipalities
  - Irrigated agriculture
- Implementation and monitoring plans
  - Municipal stormwater permits
  - Agricultural Order
  - Statewide and regional programs
  - U.S.EPA Regulations

Public Comments

- United States Department of Interior, Fish and Wildlife Service
- Somach Simmons & Dunn on behalf of Pyrethroid Working Group

U.S. Fish and Wildlife Service

- Concern that pyrethroids pose a risk to threatened and endangered species (tidewater gobies & California Red-legged frog)
- Strongly supports the TMDL approach
- Urges State Board to approve the TMDL

Pyrethroid Working Group

- Send back TMDL and develop approach using "Triggers"
- Use only freely dissolved concentrations
- Use water column criteria as "Goals" and not targets
- Consider research provided by the Pyrethroid Working Group
- Pyrethroid water criteria based on UC Davis method overly conservative
- TMDL process was not as fair, open, and transparent

Conclusion

- Water quality impairments
- TMDL is appropriate for the central coast region

Recommendation

Approve the Central Coast Water Board's

Basin Plan Amendment

TMDLs for Sediment Toxicity and Pyrethroid Pesticides in the Lower Salinas River Watershed

Supplemental Slides

Criteria Used as Column Water Targets

Pyrethroid	RB3 – Salinas TMDL		RB5 Pyrethroids Control Program	
Averaging Period	Acute (1 hr.) (ng/L)	Chronic (4d) (ng/L)	Acute (1 hr.) (ng/L)	Chronic (4d) (ng/L)
Bifenthrin	4	0.6	0.8	0.1
Cyfluthrin	0.3	0.05	0.8	0.2
Cypermethrin	-	-	1	0.3
Esfenvalerate	-	-	2	0.3
Lambda-cyhalothrin	1	0.5	0.7	0.3
Permethrin	-	-	6	1
Bioavailability	Recommended, total concentrations can be used when appropriate		Required – criteria apply to freely dissolved fraction. Can be measured or calculated Default coefficients provided for calculation.	
Additivity	NA		Sum of 6 concentrations/criterion < 1	

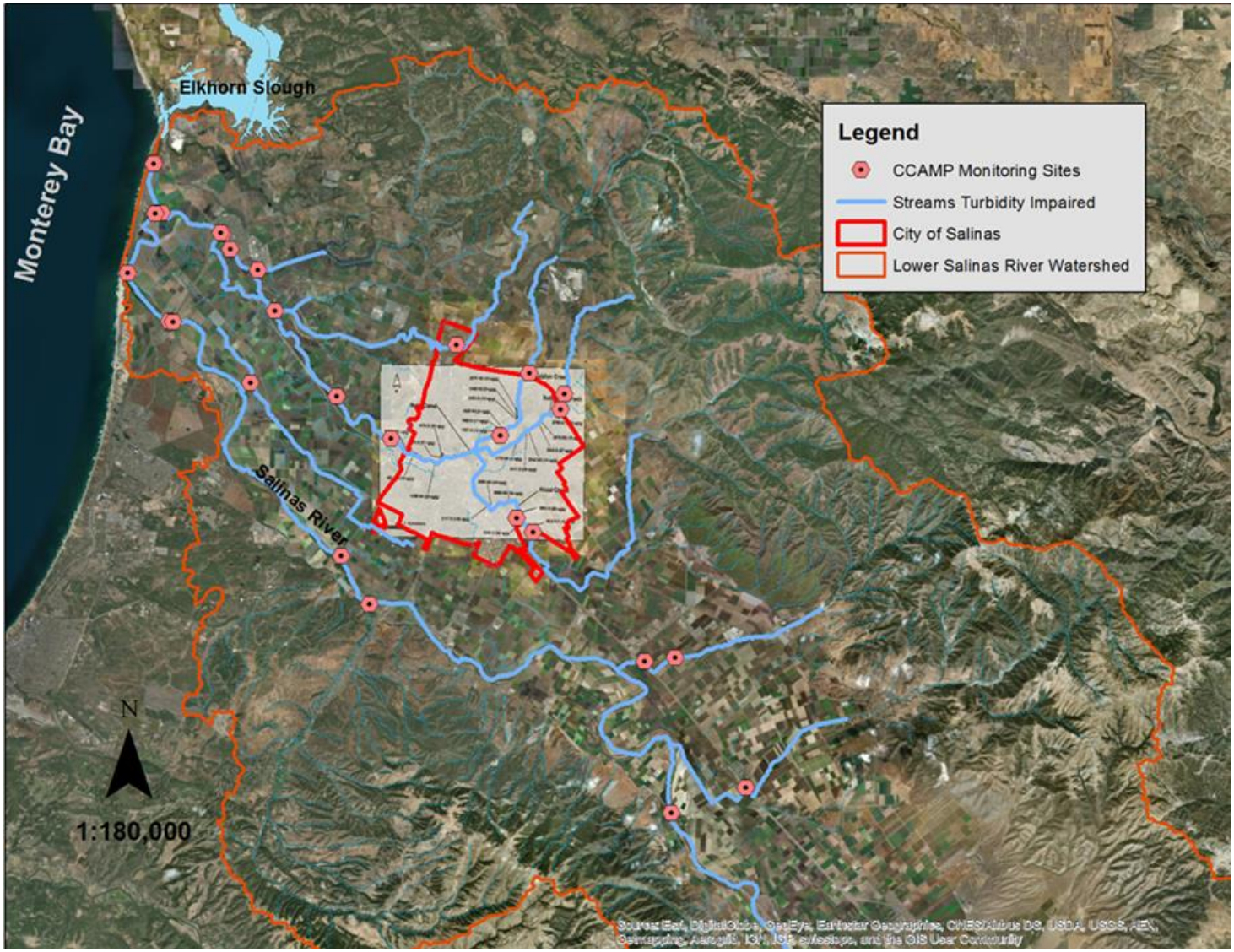
Pyrethroids in the Water Column

Chemical	Sample Count	Detections	Detection %	Exceedances	Exceedances %
Bifenthrin	72	45	63%	42	58%
cypermethrin	72	2	3%	0	0%
fenvalerate/esfenvalerate	72	2	3%	0	0%
permethrin	72	22	31%	22	31%
Lambda-cyhalothrin	72	20	28%	20	28%
Cyfluthrin	72	0	0%	0	0%

Water Quality Objectives

- *Toxicity: All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life.*

- *Pesticides: No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses.*


Elkhorn Slough
Monterey Bay
Salinas River
Legend
CCAMP Monitoring Sites
Streams Turbidity Impaired
City of Salinas
Lower Salinas River Watershed
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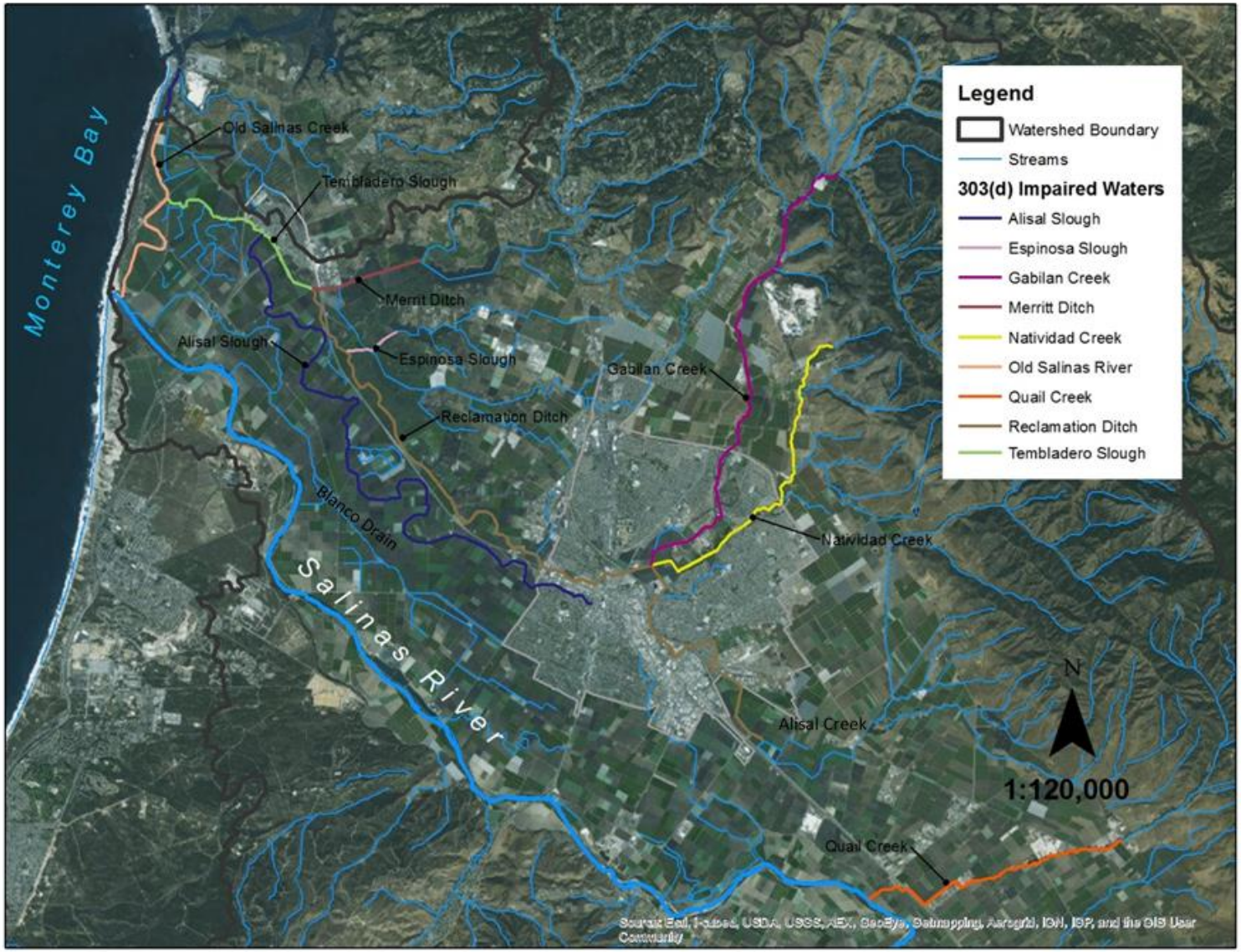
Study Area



Impaired Waters